Phloretin

INCI Name: Phloretin

CAS Numbers: 60-82-2

Description:

Phloretin is a potent antioxidant found in the bark from apple, pear and grapefruit trees. This bioflavonoid is a polyphenolic compound, the aglucone portions of phlorizin (by decomposition).

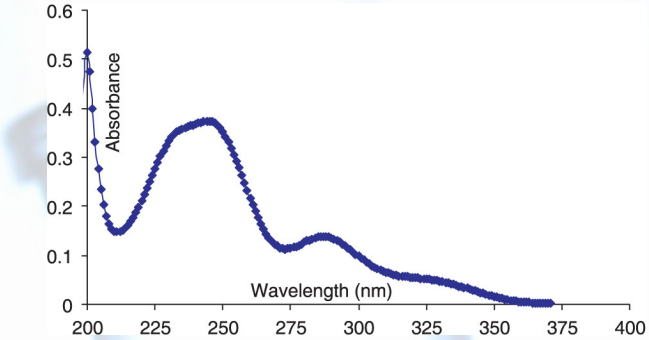
Technical Data:

Test	Range
Appearance	Weak Red Powder
Odor	Characteristic
Loss on Drying	≤ 5.0%
Assay (by HPLC)	98%
Heavy Metals	≤ 10 ppm

Applications:

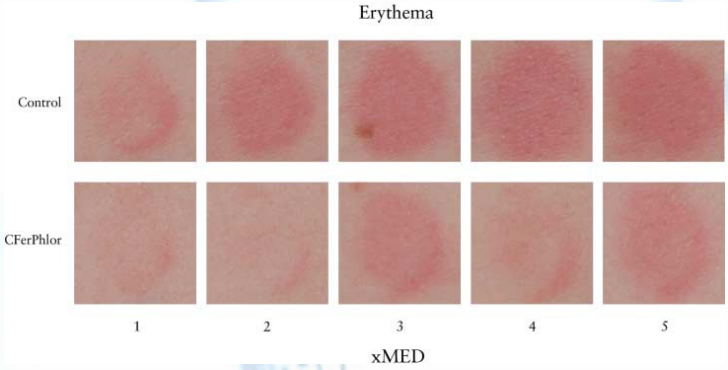
Phloretin is a powerful antioxidant with a broad range of benefits such as anti-cancer, anti-inflammatory, accelerates cell renewal, pigment inhibitor, and enhances product penetration. It has also found to be effective in protecting human skin from the effects of photo-aging when applied topically. Photo-aging refers to the aging of the skin by UV rays as a result of repeated exposure to the sun over many years. In addition, Phloretin inhibits nearly 80% of the eslastin destroying enzyme, elastase, which cause wrinkles and sagging skin. It may also have antifungal, antibacterial, and antiviral uses. Uses lotions, skin care, cosmetics, and sunscreens.

The UV Absorption Profile of Vitamin C, Ferulic Acid and Phloretin



Ultraviolet (UV) absorption profile of vitamin C, ferulic acid, and phloretin (CFerPhlor). CFerPhlor was diluted to 100 p.p.m. and the UV profile was measured using a spectrophotometer in the range of 200 nm to 400 nm. The UV absorbance (Y-axis) was plotted against the wavelength (X-axis).

The Effects of Vitamin C, Ferulic Acid, and Phloretin Protection Against UV Induced Erythema



Effect of vitamin C, ferulic acid, and phloretin (CFerPhlor) protection against ultraviolet (UV)-induced erythema. CFerPhlor or vehicle alone (control) were applied to the back skin daily for 4 days. Skin was irradiated with solar-simulated UV 1X-5X minimal erythema dose (MED).

Absorption of Phloretin to Monolayers and Membranes

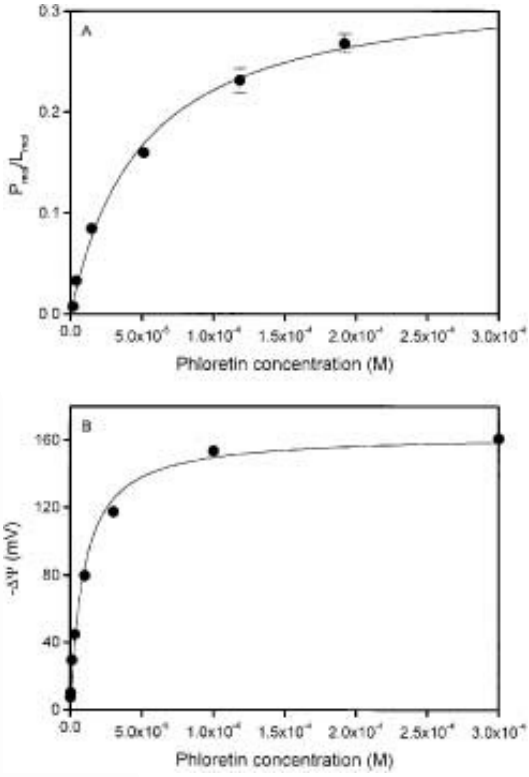


Figure A) Absorption of phloretin to egg-PC on a solid support denoted as the molar ratio of absorbed phloretin/lipid, $^{P}mol/^{L}$ versus the aqueous phloretin concentration. The data are fitted according to the Langmuir adsorption isotherm, where instead of the surface density, the molar ratio is used for the calculation. **B)** Change of dipole potential, of egg-PC black lipid membranes versus aqueous phloretin concentration obtained from charge-pulse experiments with the lipophilic ion dipicrylaminc. The data were taken from Cseh and Benz (1998) and fitted. In both experiments with the aqueous phase contained 100mM NaCl and 20 mM NaH_2PO_4, the pH was 5.5, and the temperature was 22°C. The standard deviations were below ±10 mV.[3]

[1&2] Oresajo, C, Stephens, T, Hino, P, Law, R, Yatshayer, M, Foltis, Pa, Pillai, S, & Pinnell, S 2008, 'Protective effects of a topical antioxidant mixture containing vitamin C, ferulic acid, and phloretin against ultraviolet-induced photodamage in human skin', *Journal Of Cosmetic Dermatology*, 7, 4, pp. 290-297, Illustrations, MEDLINE, EBSCO*host*

3 Benz, Roland, Bringmann, Gerhard, Cseh, Richard, Hetzer, Michael, Kraus, Jurgen, Wolf, Kristina, 2000, 'Interaction of Phloretin with Membranes: on the Mode of Action of Phloretin at the Water-Lipid Interface', *Eur Biophys*, pp. 172-183, Illustrations

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